thorax closely punctate; body smaller and more depressed than usual in this genus. Length, 4.5 mm. = .18 inch.

I have not seen the type and the figure is drawn from a specimen in my own collection from the same locality and seemingly identical with the insect described by Major Casey. Mr. Blanchard has specimens from New Mexico, collected by Prof. F. H. Snow in which the subbasal band and median spot are connected. The elytra in one specimen bear also a disconnected subapical spot. I regard these as a form of *dispar*.

NOTES ON THE CEROSTOMA GROUP OF YPONOMEUTIDÆ, WITH DESCRIPTIONS OF NEW NORTH AMERICAN SPECIES.

BY AUGUST BUSCK.

While endeavoring to arrange some American moths of the *Cerostoma* group and for that purpose examining critically the European species placed in that genus by modern European authors, I was surprised by the diversity of forms included under that generic name. Meyrick, in his Handbook of British Lepidoptera, includes in *Cerostoma* all English Yponomeutidæ which have veins 6 and 7 in the hindwings stalked. This is at least more consistent than the course pursued by Rebel in the Catalogue of European Lepidotera, where he places one of them, *mucromella* Scopoli, under a separate genus *Theristis*, leaving the rest, which readily separate into four just as distinct genera, in *Cerostoma*. The natural way seems to be to divide the group into the five genera defined by Wallengren (Ent. Tidskrift, I, p. 53, 1880), but some of his generic names will fall in favor of Hübner's earlier terms.

The genus *Cerostoma* was founded by Latreille (Hist. Nat. des Crust. et Ins., Vol. III, p. 416, 1802) and was characterized as follows: "Ailes tres-alongées, etroites, moulés sur le corps. Quatre palpes distinctes; les superieurs droits, les inferieurs long et recourbés; leur second article penicilliforme, le derniere conique, alongé, presque nu."

The type of this genus is *Ypsolophus* (*Alucita*) *dorsatus* Fabricius, that being the only species mentioned by Latreille both in this volume and in Vol. XIII, p. 247, 1805.

Latreille's redescription of this species and his subsequent figure (Genera Crust. et Insectorum, Vol. I, Plate 16, Fig. 6, 1806) agree well with Fabricius' original description of *Alucita dorsella* (Ent. Syst., 3, 2, p. 336, 1793), which is as follows: "Alis anticis cinereis fusco irroratis; dorso communi albido; maculis duabus nigris. Magnitudo A. sylvellæ, caput albo hirtum; alæ anticæ cinereæ atomis plurimis fuscis dorsoque communi albidore maculis majoribus atomisque plurimis nigris; posticæ fuscæ. Pedes albi, tarsis nigro annulatis."

Stephens (Cat. Brit. Lep., p. 223, 1829) made this species a synonym of *Tinea vittella* Linn. (Syst. Nat., edit. X, p. 538, 1758), and inasmuch as Linné's discription does not disagree with this contention and as no disproof of the synonymy can be forthcoming, it is imperative that Stephens' synonymy should be accepted. Treitschke's contention (Schmett. Europe, Vol. IX, Part II, p. 39, 1832) that *dorsella* Fabricius is synonymous with *Tinea falcella* Hübner (D. & Sch.) (Syst. Verz. Schmett. Wien. Gegend, p. 112, 1775) cannot be sustained, owing to the priority of Stephens' determination, even if there was as much reason for Treitschke's belief as for Stephens', which, however, is not the case. Neither does Curtis' statement (Brit. Ent., Vol. IX, p. 420, 1832) that *xylostella* Linn. is the type of *Cerostoma* have any weight. Duponchel (Cat. Lep. Europe, p. 350, 1844), Herrich-Schäffer (Europe. Schmett., V, p. 41, 1853) and other subsequent writers followed Treitschke in placing *dorsella* Fabricius as synonym of *falcella* Hübner, but without giving the necessary evidence.

In any classification of the species comprised at present under the genus *Cerostoma*, the name *Cerostoma* must thus be retained for the group in which *vittella* Linné is found.

Hübner's genus *Harpipteryx* (Verz. bek. Schmett., p. 407, 1816) contained originally four species, of which Zeller made the one, *porficella*, type of a new genus *Holoscolia* (Isis, p. 190, 1839).

The other three are congeneric and the name *Harpipteryx* must therefore stand for the genus of which these three species: *hamella* Hübner = *nemorella* Linné, *harpella* Schiff. = *xylostella* Linné, and *falcella* Schiff., are to this day the principal best known species. *Xylostella* may, as suggested by Lord Walsingham (Proc. Zool. Soc. Lond., 1881, p. 309), be regarded as the type of this genus, of which *Periclymenobius* Wallengren (Ent. Tidskrift, I, p. 61, 1880) is an unquestionable synonym, as it contained the same three species and no more. Hübner's generic name *Theristis* has inconsistently been

retained by nearly all subsequent writers. It should stand for the genus at present represented by the single species *mucronella* Scopoli.

Wallengren also correctly divided the remaining European species in two genera under the names *Credemnon* and *Trachoma*, of which *sylvella* Linné and *asperella* Linné relatively may be regarded as types.

The first of these names should be dropped for Hübner's name *Abebæa* (Verz. bek. Schmett., p. 408, 1816), which may appropriately be restricted to this group.

The *Cerostoma* group as here treated may briefly be defined as including all Plutellidæ with veins 6 and 7 in hindwing stalked. The genera have the following characters in common. Labial palpi with more or less developed porrected tuft on the underside of second joint; terminal joint pointed. Maxillary palpi present, moderately developed, appressed or porrected.*

Forewings more or less elongate, apex often produced or falcate; 12 veins, 7 to termen, 1*b* furcate at base; veins 7 and 8 stalked or separate, this character does not seem to have generic value in this group, while the relative position of veins 2 and 3 in the forewing on the contrary is found to furnish a good character.

Hindwings about as broad or somewhat broader than forewings; costal edge nearly straight, dorsal edge evenly and but slightly rounded, without sinuation below the apex, which is more or less pointed; veins 6 and 7 long-stalked, all other veins separate. Tibia of hind legs smooth.

The genera may be separated by the following table:

Forewings with erect scales..... 1
Forewings smooth..... 2
1. Veins 2 and 3 in forewings separate.....**Trachoma** *Wallengreen*
Veins 2 and 3 in forewings stalked.....**Therestis** *Hübner*
2. Brush on second joint of labial palpi at most as long as terminal joint.
Cerostoma *Latreille*
Brush on second joint longer than terminal joint..... 3
3. Forewing sickle-shaped; veins 2 and 3 connate..... .....**Harpipteryx** *Hübner*
Forewings not sickle-shaped; veins 2 and 3 distant.....**Abebæa** *Hübner*

* Herrich-Schaeffer, Heinemann and other European writers state that the maxillary palpi are absent in the genus *Therestis* and this belief has probably been the principal reason why this genus alone has been retained separate; but the maxillary palpi are merely obscured from view by the strongly developed labial palpi and can be found by removing them. They are about as well developed as in any of the other genera of the group.

Cerostoma *Latreille.*

Forewings narrow elongate, more than 3½ times longer than broad, smooth, 12 veins, 7 and 8 stalked or separate, 7 to termen, 2 and 3 separate. Tuft on second joint of labial palpi broad and blunt, shorter than terminal joint. Ocelli present.

Type : *vittella* LINN.

Hereto belong presumably all of the European species listed by Rebel (Staudinger and Rebel, Cat. Lep. Eur., II, p. 138, 1901), between *vittella* Linné and *leuconotella* Snellen, inclusive. A few of these species are unknown to me except from description.

The American species, known at present, may be separated thus :

Forewings with distinct blackish second discal dot..... 1
Forewings without such dot..... 2
1. With blackish streak above the fold.....**aleutianella** *Beut.*
Without such streak.....**unicipunctella**, sp. nov.
2. With longitudinal black streaks..... 3
Without longitudinal black streaks..... 6
3. With continuous broad black streak from base to apex.....**schwarziella**, sp. nov.
Without such streak..... 4
4. Ground color pure white.....**striatella**, sp. nov.
Ground color not white..... 5
5. Head ochreous.....**manella**, sp. nov.
Head black and white.....**barberella**, sp. nov.
6. Head pure white.....**angelicella**, sp. nov.
Head not white..... 7
7. Alar expanse less than 19 mm..... 8
Alar expanse more than 21 mm..... 9
8. Membrane between veins 11 and 12 in forewing sthickened.....**radiatella** *Don.*
Membrane not thickened.....**rubrella** *Dyar*
9. Forewings light olive brown.....**olivella**, sp. nov.
Forewings dark purplish-brown.....**arizonella**, sp. nov.

Cerostoma unicipunctella, sp. nov.

Antennæ white, dotted with dark brown. Labial palpi on the outside dark fuscous, striated transversely with white, underside and inside of second joint silvery white; brush small; terminal joint thickened in front with rough scales. Maxillary palpi small, porrected, dark fuscous. Face, head, thorax and anterior wings unicolored, pale olive buff with golden reflections; at the end of the cell is a conspicuous black round dot and a few scattered black scales are found especially in the apical part of the wing. Cilia concolorous with wing except the extreme dorsal part, which is white. Hindwings light silvery gray, deepening toward the edges; cilia whitish fuscous. Legs fuscous, tarsi blackish. Alar expanse, 23 mm.

Habitat: Williams, Arizona (Schwarz and Barber).

U. S. National Museum, type No. 6751.

Cerostoma aleutianella *Beutenmüller.*

Cerostoma aleutianella BEUTENMÜLLER, Can. Ent., XXI, p. 27, 1889.

Cerostoma aleutianella RILEY, Smith's List Lep. Bor. Am., No. 5197, 1891.

Cerostoma aleutianella DYAR, Can. Ent., XXXII, p. 41, 1900; Bull. U. S. Nat. Museum, 52, No. 5498, 1903.

The unique type of the species is in U. S. National Museum, type No. 428.

Habitat: Aleutian Islands, Alaska.

Cerostoma angelicella, sp. nov.

Antennæ white with sharp black annulations. Palpi, head and thorax white; shoulders yellowish. Forewings white with striking fawn-brown ornamentation. Extreme costal base brown; at basal third of costa begins a broad brown band curved downwards and outwards, which reaches the costal edge again at the middle of the wing and encloses a small semicircular white costal spot. At its lowest point this band approaches and sometimes joins a dorsal brown spot, which begins at the base of the wing and curves upwards at basal third. On the middle of the dorsal edge begins an outwardly oblique brown streak ending on the end of the cell in an inwardly curved hook. This streak sometimes connects with a large more or less y-shaped brown costal marking at apical third, which encloses a small triangular white costal spot and which nearly reaches across the wing to a small brown spot at the anal angle. Apex and a marginal spot below apex brown. The markings are sharply defined and edged with slightly darker scales of brown.

Six specimens, from which I have described this species, show some variation in the shade as well as in the form of the brown markings. In one specimen they are quite dark brown; in the others, which seem as well preserved, though they may be faded, the markings are light golden brown. Cilia white with brown pencils in the apical part. Hindwings shining ochreous white; cilia yellowish. Legs and underside of body white, tarsi slightly dusted with dark scales. Alar expanse, 19–22 mm.

Habitat: Los Angeles, California (Coquillett).

U. S. National Museum, type No. 6765.

Cerostoma oliviella, sp. nov.

Antennæ silvery white with narrow dark brown annulations. Labial palpi yellowish-brown, mottled on the outside with dark brown scales; tuft small, terminal joint roughened in front. Head and thorax light brown. Forewings olive-brown, closely and uniformly sprinkled with dark purplish-brown or blackish atoms, which give the wings a purplish sheen. On the fold is a small deep black spot and at the end of the cell is a small aggregation of black scales, hardly forming a defined spot. Cilia yellowish. Hind wings light silvery fuscous; cilia yellowish. Legs light brown mottled with black. Alar expanse, 21.5 mm.

Habitat: Williams, Arizona (Schwarz and Barber).

U. S. National Museum, type No. 6752.

Cerostoma arizonella, sp. nov.

Antennæ dark brown. Labial palpi on the inside light brown, on the outside strongly mottled with blackish scales; tuft on second joint small, terminal joint thickened with rough scales anteriorly. Head and thorax light ochreous brown. Ground color of forewings rather light brown, but thickly overlaid on the costal three fourths with deep brown and dark purple scales so as to obscure the ground color except along the dorsal edge. The fold is indicated by being rather more profusely overlaid with dark purple scales and at the end of the cell is a small aggregation of closely placed dark purple scales, hardly forming a defined dot. Irregularly scattered over the wing both in the dark portion and in the light dorsal part are a few single black scales and still fewer single white scales. Cilia light brown. Hindwing silvery fuscous; cilia a shade darker than the edge of the wing. Legs dark purplish fuscous, tarsi with a narrow white annulation at the end of each joint. Alar expanse, 22 mm.

Habitat: Williams; Arizona (Schwarz and Barber).

U. S. National Museum, type No. 6753.

Cerostoma radiatella *Donovan.*

Sinea radiatella DONOVAN, Nat. Hist. Brit. Ins., III, p. 14, pl. 77, figs. 3 and 4, 1794.

Cerostoma radiatella REBEL, Staudinger and Rebel, Cat. Lep. Eur., II, No. 2466, 1901.

Pluteloptera ochrella CHAMBERS, Journ. Cinn. Soc. Nat. Hist., II, p. 181, 1880.

Cerastoma radiatella WALSINGHAM, Proc. Zoöl. Soc. Lond., p. 303, 1881.

Cerostoma radiatella WALSINGHAM, Ins. Life, I, p. 287, 1889.

Cerostoma radiatella RILEY, Smith's List Lep. Bor. Am., No. 5193, 1891.

Cerostoma radiatella DYAR, Can. Ent., XXXII, p. 41, 1900.

Cerostoma radiatella DYAR, U. S. Nat. Mus., Bull. 52, No. 5500, 1903.

Lord Walsingham recorded this exceedingly variable species from California and established the synonymy of Chambers' *Pluteloptera ochrella.*

In U. S. National Museum are specimens from Williams, Arizona (Schwarz and Barber), which I cannot distinguish from some varieties of this species, a good European series of which is also in the Museum.

They have the peculiarity, mentioned by Meyrick, of the thickened area between veins 11 and 12 in the forewings.

Cerostoma rubrella *Dyar.*

Cerostoma rubrella DYAR, Proc. U. S. Nat. Mus., XXV, p. 404, 1902.

Cerostoma rubrella DYAR, Bull. U. S. Nat. Mus., 52, No. 5501, 1903.

The type (U. S. Nat. Museum, No. 6763) and a good bred series of this species is in the National Museum.

The species is certainly quite distinct from *radiatella* which is clearly proven by the absence of any thickened costal membrane in the forewing.

Habitat: Colorado.

Food-plant: Berberis repens.

Cerostoma barberella, sp. nov.

Antennæ dark fuscous with a few scattered white scales especially toward apex. Labial palpi black, mottled with light ochreous and white scales; brush on second joint well developed but shorter than terminal joint which is strongly roughened in front. Head and thorax dark pepper and salt colored, black, white and light ochreous fuscous scales being about evenly mixed. Forewings with light whitish steel-gray ground color, strongly overlaid with black and dark fuscous scales; extreme base of costa black; an interrupted deep black streak begins at basal third, and runs in the middle of the wing to apex; other short longitudinal black dashes especially towards the edges give a streaked appearance to the wing when looked at with the naked eye. Cilia ochreous fuscous. Hindwings shining dark fuscous, nearly black towards the edges; cilia light fuscous. Abdomen dark purplish fuscous. Legs nearly black with strong purple reflection; tarsi with a narrow white annulation at the end of each joint. Alar expanse, 24 mm.

Habitat: Williams, Arizona (Schwarz and Barber), U. S. National Museum, type No. 6756.

Cerostoma schwarziella, sp. nov.

Antennæ dark fuscous. Labial palpi on the outside clothed with blackish-brown light tipped scales, on the inside with light ochreous scales; tuft short; terminal joint thickened with rough scales in front. Head and thorax light brown, shoulders slightly darker, purplish-brown. Forewings light brown, sparsely sprinkled with dark fuscous scales; from the base of costa to apex of the wing is a straight deep purplish-black streak, broadest at about basal third and slightly attenuated toward the tip of the wing; along and just inside the dorsal edge is another much less prominent, narrower deep black longitudinal streak from base to tornus, sprinkled in its entire length but especially toward tornus with single white scales. Cilia whitish ochreous. Hindwing silvery fuscous, blackish toward apex; cilia light ochreous fuscous. Legs ochreous, mottled with black. Abdomen ochreous, sprinkled with black; ovipositor protruded, horny, with spare long hairs. Alar expanse, 23 mm.

Habitat: Williams, Arizona (Schwarz and Barber). Also a specimen from Argus Mts., Arizona (Koebele). U. S. National Museum, type No. 6754.

Cerastoma manella, sp. nov.

Antennæ light fuscous. Labial palpi blackish fuscous on the outside, on the inside light ochreous; tuft on second joint small; terminal joint thickened with rough scales anteriorly.

Face, head and thorax light ochreous fuscous, with single blackish scales interspersed; shoulders darker, purplish. Forewings whitish fuscous with a violet or silvery sheen and sprinkled with light brown, dark fuscous and black scales.

The brown scaling is confined to the costal and apical half of the wing; the dark scales are arranged in poorly defined short longitudinal streaks especially towards the costal edge and towards apex, which produce a veined effect; fold and area around tornus nearly free from dark scales. Cilia whitish ochreous. Hind wings light silvery fuscous; cilia ochreous fuscous. Abdomen silvery fuscous, sprinkled with black. Legs whitish fuscous. Alar expanse, 22 mm.

Habitat: Williams, Arizona (Schwarz and Barber). U. S. National Museum, type No. 6755.

Cerostoma striatella, sp. nov.

Antennæ white towards the apex with dark brown annulations. Labial palpi, especially second joint, unusually short for the genus; brush very short; terminal joint thickened with rough scales; white with a few dark scales on third joint. Head and thorax white, a narrow black streak on the shoulders. Forewings dull chalky white with narrow more or less interrupted purplish-black longitudinal streaks, best defined in apical half of the wing and radiating somewhat from the end of the cell towards costal and dorsal edge. Dorsal edge below the fold only sparsely sprinkled with dark scales. Cilia white, tipped with black. Hindwings whitish towards the edges, light ochreous fuscous; cilia white; abdomen white, mottled above with dark fuscous; ovipositor protruded, horny, stout. Legs whitish, slightly mottled with fuscous. Alar expanse, 23 mm.

Habitat: Los Angeles, California (Koebele). U. S. National Museum, type No. 6757.

Abebæa *Hübner.*

Forewing shorter and broader than in the foregoing genus, less than three and a half times longer than broad; smooth; 12 veins, 7 and 8 separate or stalked, 7 to termen, 2 and 3 separate. Tuft on second joint of labial palpi well developed, compressed, pointed, longer than terminal joint. Wallengren, Heinemann and other European writers have stated that the ocelli are absent in this group; this is at least not always correct, and even the European species have ocelli. Thus one of Wallengren's distinguishing characters for this genus (his genus *Credemnon*) is spoiled and I admit that I should hardly have given this group generic value if it had not been done by others before me. However the long-pointed brush on second joint of labial palpi, the broader wings and a certain undefinable general habitus prove that it is a natural division at least of the foregoing genus and afford sufficient help to distinguish it from the other natural division to which the name *Cerostoma* is restricted.

Type: sylvella Linné. Of European species, only *sylvella* Linné, *lucella* Fabricius and *alpella* Schiffermüller belong to this genus.

The American species may be separated by the following table:

Forewings with broad white longitudinal streak from base to apex..... 1
Forewings without such streak..... 3
1. Apical part of the forewings with black marking..... 2
Apical part of forewings pure white..... **cockerella,** sp. nov.
2. Forewings of same color above and below white streak ..... **gerdanella,** sp. nov.
Forewings differently colored above and below white streak.
delicatella, sp. nov.
3. Forewings with narrow white longitudinal lines..... **nella,** sp. nov.
Forewings without such lines..... 4
4. Forewings without any dark markings, head and top of thorax white.
sublucella *Wals.*
Forewings with more or less dark ornamentation, head and thorax not white..... 5
5. Forewings with subobsolete blackish longitudinal streak towards apex.
cervella *Wals.*
Forewings without such streak..... 6
6. Forewings with two faint oblique parallel dark dorsal streaks and one perpendicular to these..... **querciella,** sp. nov.
Forewings without such streaks..... **subsylvella** *Wals.*

Abebæa gerdanella, sp. nov.

Antennæ white, dotted with black scales above. Labial palpi white, sprinkled with sparse black scales on the outside; tuft on second joint longer than terminal joint. Face, head and thorax white; shoulders yellowish. Forewings light golden brown with white and black markings. In the middle of the wing from base to apex is a broad white streak, slightly edged with black on both sides from base to end of cell; there it broadens out gradually and covers entire apical part of the wing, but is obscured by longitudinal black streaks covering the intervals between the apical veins and leaving the veins indicated by narrow white lines. Extreme costal edge is slightly touched with black; basal part of dorsal edge whitish. Cilia white with four narrow black transverse lines in apical part. Hindwings light silky ochreous; cilia whitish; legs and underside of body white, sparsely mottled with single black scales. Alar expanse, 18 mm.

Habitat: Mesilla Park, New Mexico, at light, May (Cockerell). U. S. National Museum, type No. 6758.

Abebæa delicatella, sp. nov.

Labial palpi white, second joint sprinkled with a few black scales on the outside, terminal joint with a small black spot at base; tuft on second joint compressed, pointed, longer than the terminal joint. Head and thorax white. The dorsal half of the forewings from base to tornus dark reddish-brown, with strong purple reflections, lighter, more yellowish on the dorsal edge, gradually becoming darker and more purple towards the middle of the wing. Bordering this dorsal part, the

edge of which is sharply defined as a straight central line, is a longitudinal pure white streak. Above this the costal part of the wing is bright golden yellow. The costal yellow part is produced somewhat farther out in the apical part of the wing than is the darker dorsal color, which stops abruptly at tornus. The apical part of the wing is white, delicately mottled with black, each scale having a thin curved black edge. Cilia white, each scale with a straight black edge. Hindwings light silvery ochreous, slightly darker, fuscous towards apex; cilia whitish. Legs white, the anterior two pairs mottled with black. Alar expanse, 16 mm.

Habitat: Yuma County, Arizona. U. S. National Museum, type No. 6759.

I am indebted to my friend, Mr. Wm. D. Kearfott for the type of this species. Cotype is in his collection.

Abebæa cockerella, sp. nov.

Antennæ white, each joint with dark fuscous spot in front. Labial palpi white; tuft on second joint longer than the short terminal joint. Face, head and thorax white with a slight yellowish tint; shoulders very light golden brown. Forewings shining silvery white; from base to tornus along and crossing fold is a broad very light golden brown streak and just below the costal edge is another similar narrower golden streak. Apical edge touched with brown; cilia white. Hindwing light silvery fuscous; cilia white. Legs and underside of body white. Alar expanse, 21 mm.

Habitat: Mesilla Park, New Mexico, at light, April (T. D. A. Cockerell). U. S. National Museum, type No. 6760.

Abebæa nella, sp. nov.

Antennæ white with narrow sharp black annulations. Labial palpi dark canary yellow with the short terminal joint light yellow. Face and head whitish-yellow. Thorax fawn brown. Forewings fawn brown with a faint central streak from base to middle of cell, canary yellow and with apical part of costal edge touched with yellow. At the base just above the yellow streak start three narrow longitudinal lines of bluish-white scales, each of which has the central part black; at the end of the cell the lower of these lines divides into several, following the apical veins; on the fold is a similar but not so well defined line of white black-spotted scales. The entire wing has strong violet reflections. Cilia light fawn-colored. Hindwings rather dark purplish fuscous; cilia yellowish. Legs and underside of body golden white, sprinkled with black; anterior tarsi blackish. Alar expanse, 21 mm.

Habitat: Williams, Arizona, July (Schwarz and Barber). U. S. National Museum, type No. 6761.

Abebæa sublucella *Walsingham.*

Cerostoma sublucella WALSINGHAM, Proc. Zoöl. Soc. Lond., p. 308, pl. XXXV, fig. 9, 1881.

Cerostoma sublucella RILEY, Smith's List Lep. Bor. Am., No. 519, 1891.

Cerostoma sublucella DYAR, Can. Ent., XXXII, p. 41, 1900.

Cerostoma sublucella DYAR, Bull. U. S. Nat. Museum, 52, No. 5495, 1903.

One cotype ♂ of this species received from Lord Walsingham is in U. S. National Museum.

Habitat: California.

Abebæa cervella *Walsingham.*

Cerostoma cervella WALSINGHAM, Proc. Zoöl. Soc. Lond., p. 307, pl. XXXV, fig. 8, 1881.

Cerostoma cervella WALSINGHAM, Insect Life, I, p. 287, 1889.

Cerostoma cervella RILEY, Smith's List Lep. Bor. Am., No. 5195, 1891.

Cerostoma cervella DYAR, Can. Ent., XXXII, p. 41, 1900.

Cerostoma cervella DYAR, Bull. U. S. Nat. Mus., 52, No. 5496, 1903.

Cotype ♂ of this species from California received from Lord Walsingham is in U. S. National Museum.

Also a large series collected by Messrs. Schwarz at Barber at Williams, Arizona.

Abebæa subsylvella *Walsingham.*

Cerostoma subsylvella WALSINGHAM, Insect Life, I, p. 287, 1889.

Cerostoma subsylvella RILEY, Smith's List Lep. Bor. Am., No. 5196, 1891.

Cerostoma subsylvella DYAR, Can. Ent., XXXII, p. 41, 1900.

Cerostoma subsylvella DYAR, Bull. U. S. Nat. Mus., 52, No. 5497, 1903.

A cotype received from Lord Walsingham is in U. S. National Museum.

Habitat: Vancouver Island, B. C.

In the Museum under this species is also a fine series bred from *Quercus agrifolia* in Alameda Co., California, by Mr. A. Koebele, which differs from Walsingham's type and description in being mottled more strongly and with blacker scales. I leave these specimens under this species with some hesitation, considering these differences and the different locality, since they exhibit some variations and possess the general markings of the type.

Abebæa querciella, sp. nov.

Antennæ white with black annulations. Labial palpi on the outside light brown, on the inside whitish; tuft longer than terminal joint, which is white. Face and head canary yellow. Thorax light reddish-brown. Forewings light golden brown, lightest, more yellowish along the costal edge and with strong silvery and greenish reflections. On the dorsal edge are two faint parallel outwardly oblique darker brown streaks one at basal third and one at the middle of the wing, reaching beyond the fold and two other subobsolete streaks perpendicular to these, all together forming a faint inverted open W. Cilia yellowish-brown. Hindwings light ochreous fuscous; cilia whitish. Legs and underside of body golden white. Alar expanse, 16 mm.

Habitat: Williams, Arizona (Schwarz and Barber).

Food-plant: Quercus.

U. S. National Museum, type No. 6762.

Described from a bred specimen. A series of less perfect, evidently somewhat rubbed specimens collected by the same gentlemen at the same locality are before me. They are much lighter, more violaceous and white, suffused with light canary yellow; but they have the same peculiar "W" marking and are probably at most a variety of this species.

Harpipteryx *Hübner.*

Forewings rather broad with apex greatly produced and bent backwards, sickle-shaped; no erect scales; 12 veins, 7 and 8 stalked, 7 to termen, 2 and 3 connate or stalked. Labial palpi with strongly developed porrected tuft which is more than twice as long as terminal joint. Maxillary palpi moderate. Ocelli probably present in all the species though obscured by the scales and difficult to discern in some. Heinemann and Wallengren state that they are absent.

Type: xylostella Linné. The European species belonging to this genus are *nemorella* Linné, *blandella* Christoph, *falcella* Hübner, *xylostella* Linné and *affinitella* Staudinger.

The known American species may be separated thus:

Apical half of costal edge of forewings dark purplish-brown..... 1
Entire costal edge canary yellow..... .....**canariella** *Wals.*
1. Light dorsal area of forewings with strong upward projection into dark part of forewing .....**dentiferella** *W ls.*
Light dorsal area without such projection.....**frustella** *Wals.*

Harpipteryx canariella *Walsingham.*

Cerostoma canariella WALSINGHAM, Proc. Zoöl. Soc. London, p. 309, pl. XXXV, fig. 11, 1881.

Periclymenobius canariellus RILEY, Smith's List Bor. Am., No. 5240, 1891.

Periclymenobius canariellus DYAR, Bull. U. S. Nat. Mus., 52, No. 5488, 1903.

Cotype received from Lord Walsingham is in the U. S. National Museum; also other specimens from California.

Harpipteryx dentiferella *Walsingham.*

Cerostoma dentiferella WALSINGHAM, Proc. Zoöl. Soc. London, p. 308, pl. XXXV, fig. 10, 1881.

Periclymenobius dentiferellus RILEY, Smith's List Lep. Bor. Am., No. 5205, 1891.

Periclymenobius dentiferellus DYAR, Bull. U. S. Nat. Mus., 52, No. 5489, 1903.

Cotype of this species received from Lord Walsingham is in the U. S. National Museum.

Habitat: California.

Harpipteryx frustella *Walsingham.*

Cerostoma frustella WALSINGHAM, Proc. Zoöl. Soc. London, p. 309, pl. XXXV, 12, 1881.

Periclymenobius frustellus RILEY, Smith's List Lep. Bor. Am., No. 5203, 1891.

Periclymenobius frustellus DYAR, Bull. U. S. Nat. Mus., 52, No. 5487, 1903.

Cotypes received from Lord Walsingham are in U. S. National Museum.

Habitat: California.

Trachoma *Wallengren.*

Forewings elongate, apex slightly produced, termen more or less sinuated, tornus rounded; with erect scale tufts; 12 veins, 7 and 8 stalked or separate, 2 and 3 separate. Labial palpi with large dense projecting tuft, longer than terminal joint. Maxillary palpi moderate. Ocelli present.

Type: *asperella*, Linné. To this genus belong the following European species: *persicella* Fabricius, *asperella* Linné, *falculella* Erschoff, *scabrella* Linné and *horridella* Treitscke.

The American species at present known may be separated thus:

Forewings with short oblique white streak at the end of the cell.....**senex** *Wals.*
Forewings without such streak..... 1
1. General color of forewings brownish.....**falciferella** *Wals.*
General color of forewings grayish.....**walsinghamiella,** sp. nov.

Trachoma falciferella *Walsingham.*

Cerostoma falciferella WALSINGHAM, Proc. Zoöl. Soc. London, p. 307, pl. XXXV, fig. 7, 1881.

Trachoma falciferella RILEY, Smith's List Lep. Bor. Am., No. 5201, 1891.

Trachoma falciferella DYAR, Bull. U. S. Nat. Mus., 52, No. 5491, 1903.

Cotypes of the species from California, received from Lord Walsingham are in the U. S. National Museum. Lord Walsingham also recorded this species from Oregon.

Trachoma walsinghamiella, sp. nov.

Cerostoma instabilella WALSINGHAM (nec Mann), Proc. Zoöl. Soc. London, p. 306, 1882.

Trachoma instabilella RILEY, Smith's List. Lep. Bor. Am., No. 5200, 1891.

Trachoma instabilella DYAR, Bull. U. S. Nat. Mus., 52, No. 5490, 1903.

Antennæ whitish, sharply annulated with black. Labial palpi with tuft on second joint very long, more than twice as long as terminal joint, porrected, whitish, thickly mottled with black. Face and head whitish-gray with a few black scales; thorax light iron gray with a central longitudinal darker, blackish line. Forewings light bluish-gray, overlaid with white, light ochreous, dark gray and black scales. The dark and light scales are so arranged in narrow longitudinal undefined

lines as to give the wing an indistinct striated appearance. The extreme dorsal edge is darker than the rest of the wing, blackish fuscous, and is limited above by a thin wavy more or less interrupted white line. Above this line in the dorsal part of the wing are several small tufts of erect black scales. Cilia dark fuscous. Termen of forewing is hardly sinuate, but the cilia is cut out just below apex and is abruptly longer at the anal angle, giving the wing a falcate appearance. Hindwings rather dark shining fuscous; cilia a shade lighter. Legs and underside of body whitish-gray, mottled with black scales; tarsi blackish. Alar expanse, 20–25 mm.

Habitat: Williams, Arizona (Schwarz and Barber), Mt. Shasta, California (Walsingham). U. S. National Museum, type No. 6764.

Part of the original series determined by Lord Walsingham as *Cerostoma instabilella* Mann is in U. S. National Museum, besides specimens determined at later dates by him as *Trachoma instabilella*. There are also two perfect, authentic European specimens of *Cerostoma instabilella* Mann. I am unable to agree with Lord Walsingham in his determination. His material consisted evidently of flown specimens with most of the erect scales and the details of the ornamentation obliterated, which has affected a superficial resemblance to *instabilella* Mann and the record of this southeast European species from America, a priori highly improbable, is thus not well founded.

It gives me pleasure to name the species in honor of Lord Walsingham.

Trachoma senex *Walsingham.*

Trachoma senex WALSINGHAM, Insect Life, I, p. 288, 1889.
Trachoma senex RILEY, Smith's List Lep. Bor. Am., No. 5202, 1891.
Trachoma senex DYAR, Bull. U. S. Nat. Mus., 52, No. 5492, 1903.
Cerostoma koebelella DYAR, Can. Ent., XXXII, p. 40, 1900.
Cerostoma koebelella DYAR, Bull. U. S. Nat. Mus., 52, No. 5499, 1903.

Dr. Dyar's unique type of *koebelella* (type No. 4422) is a *Trachoma* and, though I have no specimens of *senex* determined by Lord Walsingham, there is no doubt but that Dr. Dyar's species is identical with it. It agrees with Lord Walsingham's description, and bears the same locality label as his type, which he received from the late Dr. Riley. On the reverse of Dr. Dyar's label is written "*Cerostoma*, unnamed. Wlsm., 1886," which shows that Dr. Riley sent a specimen to Lord Walsingham, who subsequently described the species.

Habitat: California.

Theristis *Hübner.*

Forewings very long and narrow; apex strongly produced, with erect scale tufts, 12 veins, 7 and 8 stalked, 7 to ternum, 2 and 3 connate. Tuft on second joint of

labial palpi very long, porrected; terminal joint short. Maxillary palpi present, moderately developed, appressed and obscured from view by the labial palpi. Ocelli absent?

No American species has as yet been discovered and the genus is represented at present by the single European species *mucronella* Scopoli, a good series of which is in the U. S. National Museum.

THE PRICE OF DAIRY PRODUCTS AS INFLUENCING THE ABUNDANCE OF SOME INSECTS.

BY F. M. WEBSTER.

The economic entomologist sometimes meets with curious and far-reaching relationships in the matter of influences of certain factors that it would at first seem preposterous to associate with insects at all. The threadbare story involving the maiden of uncertain age, cats, mice, bumble-bees and red clover seed, however, sometimes finds a parallel.

That the price of dairy products could have any influence on chinch bugs, *Blissus leucopterus*, or any other species not an animal parasite, at first seems improbable, yet such appears to be the case, so closely are insects connected with some of our industries; and as a seeming accentuation of this fact, we have a similar combination of interests in a different part of the country, involving another insect in precisely the same manner and with the same result.

The dairyman cultivates comparatively little land; prefers permanent pastures and meadows to crop rotation, for the reason that the additional labor required to change his crop from grass to grain and back to grass again increases the expense of his business, without materially adding to his profits. In the northern portion of the country, timothy is the favorite, and, in fact, almost universal meadow grass. In previous numbers of this Journal, I have called attention to the two forms or races of chinch bugs, and pointed out the partiality of the eastern or short-winged form for the roots of timothy as a food plant, while the western or long-winged race seldom attacks this grass, and never if it can procure other food.

The short-winged or brachypterous race, once it becomes established in a timothy meadow, does not leave it, but continues to increase and lives by extracting the juices from the bulbous root, with the result that the plant discolors and dies. Timothy meadows, within the